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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/897,387	07/03/2001	Yukiko Murasawa	109997	9875

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EXAMINER

SHEWAREGED, BETELHEM

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 01/03/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/897,387

Applicant(s)

MURASAWA ET AL.

Examiner

Betelhem Shewareged

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's response filed on the 12/05/2002 has been fully considered. Claims 1 and 2 are amended and claims 1-7 are pending.

Claim Rejections - 35 USC § 103

2. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US 5,560,982) in view of Shaw-Klein (US 6,110,585).

Sato discloses an ink jet recording sheet having a transparent base, and two ink receiving layers on one side of the base (col. 2, line 15). One of the ink receiving layers that is applied on the base is an ink solvent fixation layer, and the other ink receiving layer that is applied on the ink solvent fixation layer is ink dyestuff fixation (col. 2, line 18). The claimed ink absorbing layer is equivalent to the ink solvent fixation layer and the claimed ink transmitting layer is equivalent to the ink dyestuff fixation layer. The ink dyestuff fixation layer is mainly composed of a binder such as polyvinyl alcohol, styrene-butadiene and acrylic polymer (col. 2, line 57) and filler such as silica, talc and calcium carbonate (col. 3, line 3). The ink solvent fixation layer is mainly composed of a resin such as polyvinyl pyrrolidone, polyvinyl acetal, polyvinyl alcohol ethylene-vinyl acetate and polyester (col. 3, line 30). Sato fails to disclose the claimed crosslinking agent added into the ink dyestuff fixation layer.

Shaw-Klein teaches an ink jet recording sheet having a support, typically transparent support (col. 1, line 19), and image forming layers (col. 2, lines 6-34). The top layer that is used as an overcoat layer is composed of polyvinyl alcohol (col. 3, line 44) and a crosslinker such as melamine and isocyanates (col. 4, line 47).

Sato and Shaw-Klein are analogous art because they are from the same field of endeavor that is the ink jet recording sheet art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the crosslinker of Shaw-Klein with the invention of Sato in order to improve the cohesive strength and water resistance of the ink dyestuff layer. Furthermore, the ink solvent layer would have been crosslinked at least in the region in the ink dyestuff side because during the process of making the ink jet recording sheet, the crosslinker from the ink dyestuff would migrate into the layer of the ink solvent.

Response to Arguments

3. Applicant's argument is based on that the Shaw-Klein does not provide the deficiencies of Sato because Shaw-Klein does not have ink transmitting layer having hydrophobic resin as claimed. The argument has not been found persuasive for the following reason.

Sato used either hydrophobic resin such as styrene-butadiene and acrylic or hydrophilic resin such as polyvinyl alcohol to make the ink dyestuff fixation layer which is equivalent to the claimed ink transmitting layer. However, Sato fails to include a crosslinking agent in the ink dyestuff fixation layer. The examiner combined the Sato reference and the Shaw-Klein reference to show that a person of ordinary skill in the art would have been motivated and ***combine the crosslinking agent of Shaw-Klein with the ink dyestuff fixation layer*** so as to enhance the cohesive strength and water resistance of the ink dyestuff fixation layer, ***not to replace the resin that is used to make Sato's ink dyestuff fixation layer with the hydrophobic resin that is used to***

make Shaw-Klein's image forming layer. For the above reason claims 1-7 stand rejected.

New Rejection

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Iwamoto et al. (US 6,139,940).

Iwamoto discloses an ink jet recording sheet having a substrate, an ink absorbing layer onto the substrate, and an ink permeable layer onto the ink absorbing layer (abstract). The ink permeable layer is equivalent to the claimed ink transmitting layer. The substrate may be transparent (col. 2, line 56). The ink permeable layer comprises inorganic pigments, crosslinking agents (col. 2, line 35), and a hydrophobic resin (col. 2, line 39). The ink absorbing layer comprises water soluble resin (col. 3, line 34). The ink absorbing layer would inherently be crosslinked at least in the region adjacent to the ink permeable layer because during the process of making the ink jet recording sheet, the

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crosslinking agents from the ink permeable layer would migrate into the ink absorbing layer.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto et al. (US 6,139,940) in view of Hamada et al. (US 6,177,181).

Iwamoto discloses an ink jet recording sheet having a substrate, an ink absorbing layer onto the substrate, and an ink permeable layer onto the ink absorbing layer (abstract). The ink permeable layer is equivalent to the claimed ink transmitting layer. The substrate may be transparent (col. 2, line 56). The ink permeable layer comprises inorganic pigments, crosslinking agents (col. 2, line 35), and a hydrophobic resin (col. 2, line 39). The ink absorbing layer comprises water soluble resin (col. 3, line 34).

Iwamoto fails to disclose crosslinking agents to be contained in the ink absorbing layer. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to add crosslinking agents into the layers of an ink jet recording layer in order to enhance water resistance of the layers (col. 15, line 8 of Hamada).

8. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (US 5,027,131) in view of Hamada et al. (US 6,177,181).

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Hasegawa teaches a recording medium having a transparent substrate (col. 4, line 25), an ink retaining layer on the substrate, and an ink transporting layer on the ink retaining layer (abstract and col. 4, line 1). The ink retaining layer is equivalent to the claimed ink absorbing layer, and the ink transporting layer is equivalent to the claimed ink transmitting layer. The ink transporting layer comprises particles (col. 4, line 54) and a hydrophobic binder such as ethylene-vinyl acetate, polyvinyl acetate, styrene-acrylic, polyvinyl butyral, acrylic, styrene-butadiene, and polyurethane (col. 6, lines 5-15).

Hasegawa fails to disclose crosslinking agents to be contained in the ink retaining layer and the ink transporting layer. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to add crosslinking agents into the layers of an ink jet recording layer in order to enhance water resistance of the layers (col. 15, line 8 of Hamada).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betelhem Shewareged whose telephone number is 703-305-0389. The examiner can normally be reached on Mon.-Thur. 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H Kelly can be reached on 703-308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-305-3599 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

CRYSTAL H. KELLY
SUPERVISOR, RECEPTION
TELEPHONE NUMBER 703

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December 30, 2002.

Cynthia Kelly